Kennecott
10 East South Temple
P.O. Box 11248
Salt Lake City, Utah 84147

FILE COPY

April 28, 1986

Kennecott

Mr. Lowell P. Braxton
Administrator
Mineral Resource Development
and Reclamation Program
Division of Oil, Gas and Mining
Utah Department of Natural Resources
365 West North Temple
Three Triad Center, Suite 350
Salt Lake City, Utah 84180

SUBJECT: Utah Copper Division Modernization Project

Dear Mr. Braxton:

Enclosed for your review and approval is the permit application package for Phase II of the Utah Copper Division Modernization Project. Please contact Mr. Al Trbovich (801/322-8263) as soon as possible if you require additional information or clarification to complete the Phase II permitting.

Very truly yours,

G. H. Boyce
Director
Environmental Affairs

/mf
Enclosures

cc: V. R. Rao, w/enc.
S. D. Taylor, w/enc.
A. M. Trbovich, w/enc.
J. B. Winter, w/enc.

0015

Permit Application Package
Utah Copper Division Modernization Project
Phase II - Grinding Plant, Ore Conveyor and Flotation Feed Pipeline

Introduction and General Information

On December 2, 1985, Kennecott applied to the Utah Division of Oil, Gas and Mining (DOGM) for amendment of our existing mining and reclamation plan for the Utah Copper Division operation. The proposed changes reflect Kennecott's plans to modernize the Utah facilities by installing inpit crushing, conveying of crushed ore to a new grinding plant approximately one mile north of Copperton, the grinding plant, a pipeline to transport the ground ore (flotation feed) to the existing Arthur and Magna flotation facilities and a second pipeline to return process water to the grinding plant.

In order to expedite the permitting process, DOGM split the project into two phases. Phase I, which has been permitted, consists of grading the grinding plant area and construction of an access road into the grinding plant site. Phase II consists of constructing the process facilities described above. Since December 2, 1985, several submittals containing information about the Phase II plans have been given to DOGM. This document represents a consolidation of the previously submitted information and the initial presentation of additionally required information. The purpose is to provide an easily readable presentation of Kennecott's Phase II plans.

Several portions of the modernized facilities are located on property currently permitted under Kennecott's existing Mining and Reclamation Plan. These facilities, including the inpit crusher, a portion of the ore conveyor and a portion of the pipeline corridor, do not require repermitting and will not be discussed in detail in this document.

Site Location and Conditions

The Utah Copper Division grinding plant will be located in the SW¼ of Section 5 and the SE¼ of Section 6, T3S, R2W, SLBM. The ore conveyor will traverse portions of Sections 6,7, and 18, T3S, R2W, SLBM. The pipeline corridor will traverse portions of Sections 5 and 6, T3S, R2W; Sections 6, 7, 8, 16, 17, 21, 28, 29, and 32, T2S, R2W; and Section 31, T1S, R2W, SLBM. Drawing 712-C-120 (Concentrator Site, Mass Earthwork Schematic, enclosed) defines the grinding plant area to be disturbed. Drawing 712-C-101 (Concentrator Site Plan, enclosed) locates the grinding plant facilities, Drawing 712-SKC-3-152 (Drainage Report Area Plan, enclosed) defines the ore conveyor and pipeline corridors. Each corridor is 200 feet wide. The ore

conveyor corridor is 6,350 feet in length from the crossing over State Highway 48 in Copperton to the southern edge of the grinding plant site. Additional detail about the conveyor corridor is provided on Drawings D-12-MH-608, D-12-MH-609, D-12-MH-610 (Conveying System Plan and Profile). The pipeline corridor, including the areas of common pipeline corridor and single pipeline corridor is 86,000 in length from the northern edge of the grinding plant site to the point of entrance on to currently permitted property. The total area of the grinding plant site is 163 acres. The ore conveyor corridor covers 30 acres. The pipeline corridor covers 395 acres. The entire area is owned by Kennecott.

Soil Conservation Service survey maps (Figures 1-4) which delineate the grinding plant site and the corridors are enclosed. Detailed geotechnical information is included in the previously submitted Final Geotechnical Investigations Report, Volumes I and II, and will not be repeated here. Additional information is provided in the enclosed report "Geotechnical Investigation Report, Conveyor Line Corridor".

The area to be disturbed currently consists of undeveloped land used for agricultural purposes or not in use. In places, the pipeline corridor is located along a right-of-way previously used for a mining railroad. Other portions of the pipeline corridor pass through Kennecott property leased to Hercules and currently used for aerospace manufacturing. Kennecott and Hercules have coordinated the land use to permit a joint presence. There are no existing structures on the site, including no previously active or inactive, surface or underground mined areas. Miscellaneous debris gathered during construction will be removed to the Salt Lake County Trans-Jordan landfill near Lark.

During construction, warning signs will be posted at all natural ingress points to the site to prevent public access. After construction is completed, the grinding plant site and the ore conveyor corridor will be fenced. Warning signs will be posted every 500 feet and at all natural ingress points. The signs will be approximately 10 inches by 20 inches and will say "Kennecott Property, No Trespassing, Violators will be Prosecuted".

Vehicle access over the flotation feed pipeline will be provided at several locations (Drawing 410-SKC-107, Flotation Feed Pipeline Plan with Pipeline Crossings). Wildlife access will be provided at several additional locations. These additional locations were determined in consultation with the Utah Division of Wildlife Resources (DWR). The wildlife access will be soil embankments installed to permit wildlife to walk over the pipeline. The precise location of the wildlife accesses will be determined during construction after site inspection and review with DWR. If, at some future date, wildlife migration and control dictates an access change, additional wildlife ramps will be constructed.

New Facility Description

The new facilities being constructed within the modernization scope include one inpit movable crusher, approximately five (5) miles of seventy two (72) inch wide ore conveyor, an ore grinding plant, a flotation feed pipeline and a return water pipeline. The grinding plant will include three (3) independent grinding lines consisting of one semiautogenous (SAG) mill and two (2) ball mills each. Ore will be crushed in the pit and conveyed to a stockpile at the grinding plant. Ore will be reclaimed from beneath the pile and conveyed to the grinding circuits. The ground ore will be gravity slurried, via pipeline, to the existing concentrators for additional processing. The existing tailings pond will continue in use. Water will be recycled from the tailings pond to the grinding plant for reuse.

Additional detail regarding the process was provided in our submission of December 2, 1985, and will not be repeated here.

Other Permitting Agencies

The Utah Bureau of Air Quality (BAQ) is responsible for reviewing all aspects of the modernization project for potential air quality impacts. Kennecott is installing the necessary emission controls to meet the applicable New Source Performance Standards (NSPS) and Best Available Control Technology (BACT) provisions. Mr. Don Robinson of BAQ is this agency's contact for the modernization project. The information submitted to BAQ for review and approval will not be repeated here.

The Utah Bureau of Water Pollution Control (BWPC) is responsible for reviewing all aspects of the modernization project for potential surface and groundwater quality impacts. Kennecott is installing the necessary controls to assure that there is not adverse water quality impact from the modernized facilities. Mr. Byran Elwell of BWPC is this agency's contact for the modernization project. The information submitted to BWPC for review and approval will not be repeated here.

The Salt Lake County Flood Control Division is responsible for reviewing all aspects of the modernization project for potential impacts to surface drainage patterns. Kennecott is installing the necessary control equipment to assure proper drainage of precipitation. Several bonds totalling $1,066,762 have been posted with the County as security for proper construction. Mr. Cade Lockwood of the Development Service Division is the County's contact for the modernization project. The information submitted to the County for review and approval will not be repeated here.

Final Reclamation Plan

The final reclamation plan involves returning the area to native vegetation or the equivalent. Following permanent closure of

the Kennecott facilities, usable equipment will be salvaged and sold. The time necessary to complete this process is very difficult to forecast because of the highly variable used equipment market. Two (2) years is estimated. Following sale of salvageable equipment, the surface structures will be razed. Whenever possible, salvageable material will be sold as scrap for recycle. Otherwise, the material and debris will be removed to an approved solid waste landfill. This step is expected to require two (2) years. After razing, foundations will be broken apart, removed and/or buried. Parking and driving surfaces will be broken up and buried. The area will then be regraded and compacted areas will be ripped to twelve (12) inches. This step is expected to require one (1) year. During the first October following the completion of regrading the area will be replanted.

Kennecott will not store any first horizon soil for final reclamation use. Instead, following construction, Kennecott will establish a test program to determine techniques for best reclaiming the second horizon soil to a vegetative support level equivalent to the nearby undeveloped areas. The information collected by the test program will be used along with other appropriate input, to determine the detailed final reclamation procedures following permanent closure.

A few facilities will remain after final reclamation. The two (2) pipelines will remain in place for use in diverting area surface flows from the populated areas east of the site. The pipeline and conveyor service roads will remain in place to permit pipeline access.

A schedule estimating the final reclamation cost is included in Table 1. Detail about the reclamation cost is provided in Tables 2-5. A bond will be posted with DOGM for the reclamation cost. Area which is disturbed during construction, reclaimed under the post-construction reclamation plan and not further disturbed during operations is not included in the final reclamation plan. This area is principally the embankments along the ore conveyor corridor.

Post Construction Reclamation

A volume of 14,000 cubic yards of upper horizon soil will be removed from the plant site and stored for post-construction reclamation. The soil will be scraped from the site after grubbing and clearing has occurred and will be stored in a stockpile east of the site (see Drawing 712-C-120). Precipitation runoff will be directed around the stockpile and a silt control fence will be constructed to prevent the escape of fine particulate matter from the stockpile. The soil will be stored from one (1) to three (3) years, as a function of the area to be revegetated and the construction schedule.

Upon completion of construction, the stored soil will be placed on the remaining exposed ground (i.e., road embankments, plant site slopes.) A one (1) foot layer will be placed. Some of the steeper embankments may receive less than one (1) foot of soil, if stability is limited. Soil placement will occur in September and early October, followed by fertilized planting in late October. The post-construction seed mixture is given in Table 6.

Prior to the removal of cut or the placement of fill along the conveyor and pipeline routes, the upper horizon soil will be removed from all areas scheduled for disturbance. This soil will be scraped from the routes after grubbing and clearing has occurred and will be stored in stockpiles along the corridors. Precipitation run-off will be directed around the stockpiles and silt control fences will be constructed where necessary to prevent the escape of fine particulate matter from the stockpile. The soil will be stored from one (1) to three (3) years as a function of the area to be disturbed and the construction schedule.

Upon completion of construction, the stored soil will be placed on the remaining exposed ground. A one (1) foot layer will be placed. Some of the steeper embankments may receive less than one (1) foot of soil if stability is limited. Soil placement will occur in September and early October, followed by fertilized planting in late October. The same seed mixture used for the grinding plant site will be utilized along the corridors.

TABLE 1

SITE RECLAMATION ESTIMATE FOR BOND ESTIMATING

PHASE II

Item	
Demolish and Dismantle Structures (See Table 2 for data)	$3,770,000
Load and Ship Materials (See Table 3 for detail)	$1,584,000
Prepare and Plant Site (see Table 4 for detail)	$ 85,044
Subtotal	$5,439,044
Contingency (10%)	$ 543,904
Total	$5,982,948

Note: Total does not include $1,450,000 credit for salvage value.

TABLE 2

DEMOLITION AND DISMANTLING ESTIMATE FOR BOND ESTIMATING

PHASE II

Item	Quality	Manhours	Cost
Earthwork	95,000 cy	-	$ 455,000
Concrete	4,310 cy	14,140	$ 282,800
Steel	7,075 st	26,245	$ 524,900
Building Finish	1 lot	13,750	$ 275,000
Tanks	1,167 st	10,600	$ 212,000
Plant Equipment	9,380 st	48,050	$ 961,000
Piping	476 st	23,400	$ 468,000
Electrical Equipment	1 lot	6,550	$ 131,000
Recovery	1 lot	18,000	$ 360,000
Wiring and Cable	348,130 lf	5,000	$ 100,000
Total	-	165,735	$3,769,700

TABLE 3

LOADING AND SHIPPING MATERIALS ESTIMATE FOR BOND ESTIMATING

PHASE II

Item	Quality	Manhours	Cost
Load to Dump	-	4,000	$ 80,000
Transport to Dump	1,600 st	-	$ 48,000
Load Salvage	-	9,100	$ 182,000
Transport Salvage	18,200 st	-	$1,274,000
Total			$1,584,000

TABLE 4

SITE RECLAMATION ESTIMATE FOR BOND ESTIMATING (REVISED)

PHASE II

Item	Cost/Acre		Cost
Final Site Preparation (Dozer) $800/day x 1 day/20 acres	$ 40.00	X115 acres	$ 4,600
Seed Mix (Drill) 19.0 PLS/acre x 15.84/PLS	$301.00	X107 acres	$32,207
Seed Mix (Broadcast) 38.0 PLS/acre x 15.84/PLS	$602.00	X8 acres	$ 4,816
Fertilizer 250 pounds/acre x $0.1152/pound	$ 28.00	X115 acres	$ 3,220
Mulch 2000 lbs/acre x $50/ton	$ 50.00	X115 acres	$ 5,750
Equipment Rental (Tractor & Drill) $300/day x 1 day/20 acres	$ 15.00	X107 acres	$ 1,605
Fuel	$ 0.50	X107 acres	$ 54
Equipment Service and Maintenance	$ 1.90	X107 acres	$ 204
General Manpower $50/day x 1 day/20 acres	$ 7.50	X115 acres	$ 863
Equipment Operator, Dozer $148.10/day x 5.75 days			$ 852
Equipment Operator, Tractor $148.10/day x 5.35 days			$ 793
Broadcast Seeding Manpower $22.80/hour x 4 hours			$ 91
Miscellaneous	$ 8.70	X115 acres	$ 1,000
Access Road Maintenance			$28,989
TOTAL			$85,044

NOTE: The seed mix to be used in final reclamation is to be determined by future studies. The seed mix used for this calculation is given in Table 5.

TABLE 5

SEED MIX FOR RECLAMATION ESTIMATE

PHASE II

Species	Rate* (lbs./acre)
Grasses	
Agropyron dasystachyum (thickspike wheatgrass)	2.0
Agropyron intermedium (intermediate wheatgrass)	2.0
Agropyron smithii (western wheatgrass)	2.0
Agropyron trachycaulum (slender wheatgrass)	1.5
Elymus cinereus (Great Basin wildrye)	2.0
Oryzopsis hymenoides (indian ricegrass)	1.0
Forbs	
Achillea millefolium (yarrow)	.1
Aster Chilensis (Pacific aster)	.1
Helianthus annuus (sunflower)	1.0
Linum lewisii (Lewis flax)	.5
Medicago sativa ('Ranger' alfalfa)	1.0
Melilotus officinalis (yellow sweetclover)	1.0
Penstemon strictus (Rocky Mountain penstemon)	.2
Shrubs	
Amelanchier alnifolia (serviceberry)	2.0
Artemisia tridentate ssp. vaseyana ('Hobble Cr.' mountain big sagebrush)	.1
Cercocarpus montanus (true-leaf mtn. mahogony)	2.0
Chrysothamnus nauseosus (rubber rabbitbrush)	.5
Total Seed	

*Rate is in terms of Pure Live Seed (PLS) for drill seeding only. The rate for broadcast seeding is double the drill rate.

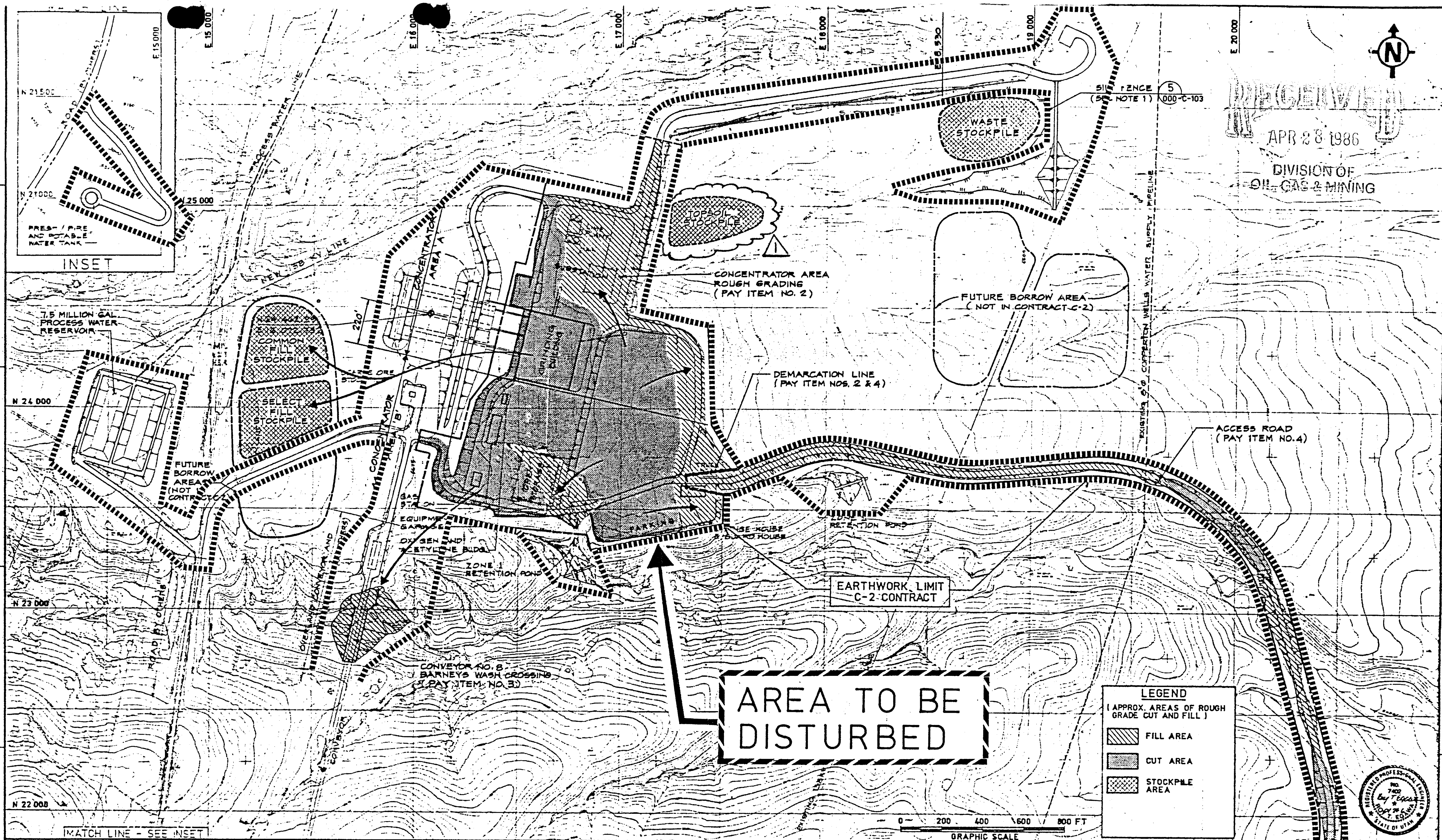
After seeding, 2000-2500 lbs./acre of alfalfa hay mulch will be spread of the entire area and crimped into the soil with a mulch crimper.

TABLE 6

POST-CONSTRUCTION SEED MIXTURE

Species	Quantity (PlS Lb/Acre)
Thick Spike Wheat Grass	0.75
Tall Wheat Grass	2.0
Intermediate Wheat Grass	4.0
Streambank Wheat Grass	1.0
Siberian Wheat Grass	1.75
Western Wheat Grass	0.5
Slend Wheat Grass	3.0
Pubescent Wheat Grass	5.0
Sheep Fescue	0.5
Range Alfalfa	2.0
Sweet Yellow Clover	2.0
Total Seed	22.5

A 16-16-8 fertilizer will be applied at a rate of 250 pounds per acre. Depending upon terrain at specific locations, fertilizer will be applied by a spreader pulled by a tractor or will be broadcast by hand. Organic matter or mulch will not be applied. The agronomic procedure will include tilling and drill seeding, to be performed by a snowcat pulling a tilling/seeding machine. Depth of tilling will be three inches. Broadcast seeding by hand will be performed on steeper slopes. Any contaminated material (i.e., soil contaminated with oil) will be removed to an approved solid waste landfill.


INSET
N 21 500
N 21 000
E 15 000
FRESH / FIRE AND POTABLE WATER TANK
ROAD (BY OTHERS)
E 15 000
E 16 000
E 17 000
E 18 000
E 18,530
E 19 000
E 20 000
N 25 000
N 24 000
N 23 000
N 22 000
7.5 MILLION GAL PROCESS WATER RESERVOIR
COMMON FILL STOCKPILE
SELECT FILL STOCKPILE
220'
CONCENTRATOR AREA 'A'
CONCENTRATOR AREA 'B'
GRINDING BUILDING
FUTURE BORROW AREA (NOT CONTRACT C-2)
PROCESS WATER LINE
TOPSOIL STOCKPILE
WASTE STOCKPILE
SILT FENCE (SEE NOTE 1)
5
000-C-103
CONCENTRATOR AREA ROUGH GRADING (PAY ITEM NO. 2)
FUTURE BORROW AREA (NOT IN CONTRACT C-2)
DEMARCATION LINE (PAY ITEM NOS. 2 & 4)
EXISTING 8'Ø COPPERTON WELLS WATER SUPPLY PIPELINE
ACCESS ROAD (PAY ITEM NO.4)
GAS STATION
EQUIPMENT GARAGE
OXYGEN AND ACETYLENE BLDG.
ZONE 1 RETENTION POND
PARKING
ZONE 2 RETENTION POND
EARTHWORK LIMIT C-2 CONTRACT
OVERLAND CONVEYOR AND ROAD (BY OTHERS)
CONVEYOR
ROAD BY OTHERS
CONVEYOR NO. 8 BARNEYS WASH CROSSING (PAY ITEM NO. 3)
AREA TO BE DISTURBED
LEGEND
(APPROX. AREAS OF ROUGH GRADE CUT AND FILL)
FILL AREA
CUT AREA
STOCKPILE AREA
0 200 400 600 800 FT
GRAPHIC SCALE
MATCH LINE - SEE INSET
RECEIVED
APR 28 1986
DIVISION OF OIL GAS & MINING
REGISTERED PROFESSIONAL ENGINEER No. 7402 ROY T. EGAWA STATE OF UTAH

NO.	DATE	REVISION	BY	APP.	APP.
		2-11-86			
1	2-10-86	REV. LOCATION FOR TOPSOIL STOCKPILE			
0	1-31-86	ISSUED FOR CONSTRUCTION			
D	12-9-85	GENERAL REVISION, REISSUED FOR BID-CONTRACT C-2			
C	10-29-85	REVISED AND REISSUED FOR BID-CONTRACT C-2	ORIGINAL SIGNED		
B	10-26-85	ISSUED FOR BID - CONTRACT C2	ORIGINAL SIGNED		
A	9-11-85	ISSUED FOR APPROVAL	ORIGINAL SIGNED		

REFERENCE DRAWINGS | NUMBER

NOTES

1. SILT FENCE LIMITS SHOWN IS A MINIMUM REQUIREMENT; CONTRACTOR SHALL PROVIDE ADDITIONAL SILT FENCING AND OTHER MEASURES AS REQUIRED AND AS DIRECTED TO CONTROL SOIL EROSION FROM CONSTRUCTION AREAS.

DESCRIPTION | COST ACCOUNT

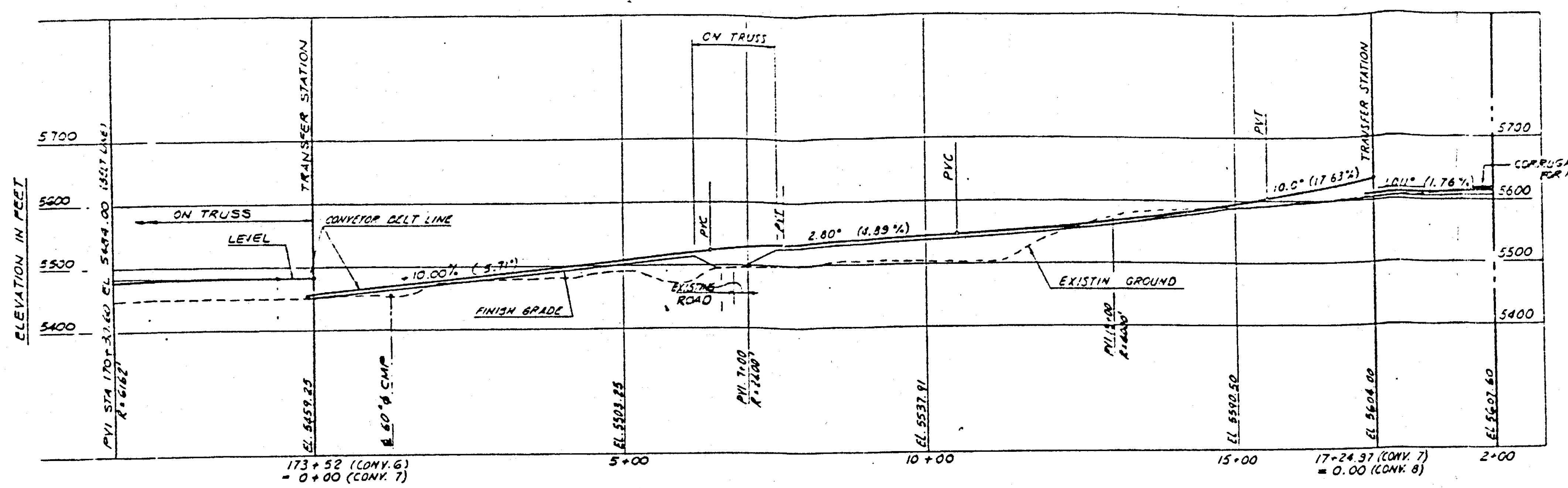
BECHTEL CIVIL & MINERALS, INC.
SAN FRANCISCO

APPROVAL	DATE		DATE
KENNECOTT:		SCALE 1" = 200'	
PROJECT ENGINEER:	2-3-86	DESIGNED BY MM KOSTANIAN	12-7-85
PROJECT DIRECTOR:		DRAWN BY PM SECRETARIO	12-7-85
		CHECKED BY RL NG	12-7-85
		APPROVED BY	1-23-86

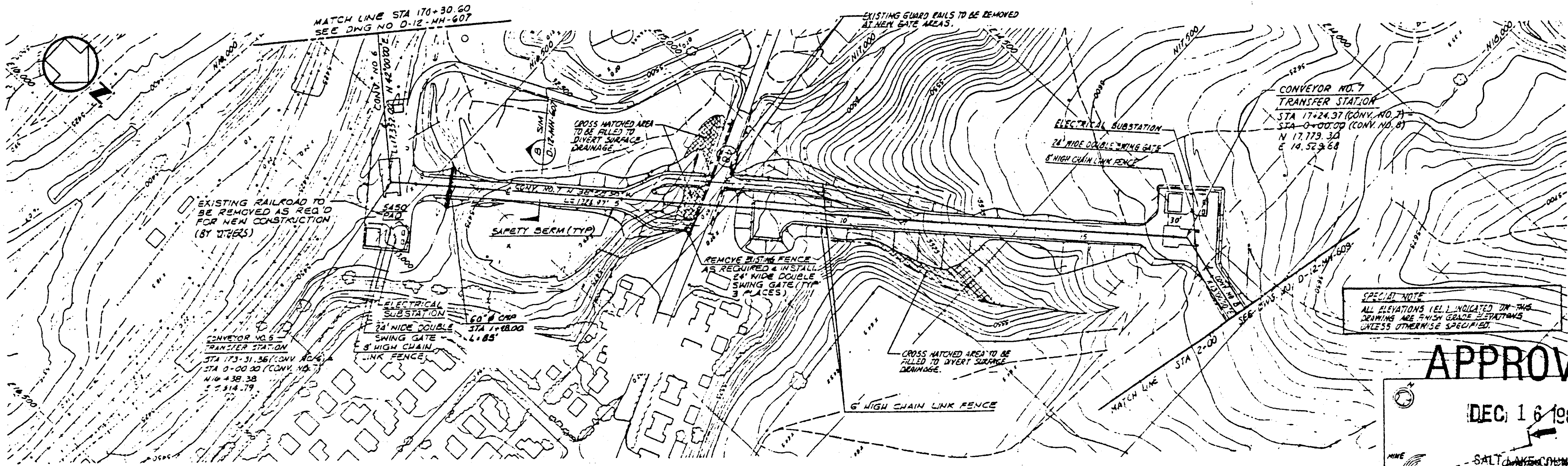
KENNECOTT

UCD CONCENTRATOR MODERNIZATION
CONCENTRATOR SITE
CONTRACT C-2
MASS EARTHWORK SCHEMATIC

Job No. 17594 | Dwg. No. 712-C-120 | 1



PROFILE
SCALE 1"=100'



SPECIAL NOTE
ALL ELEVATIONS (EL.) INDICATED ON THIS DRAWING ARE FINISH GRADE ELEVATIONS UNLESS OTHERWISE SPECIFIED.

PLAN
SCALE 1"=100'

KEY PLAN

NOTES
1. CONVEYOR CONVEX AND CONCAVE CURVES AS SHOWN ARE APPROXIMATE. CONVEYOR VENDOR SHALL SPECIFY.

NO.	DATE	REVISION
	4-4-86	ISSUED FOR REVISED CONV. FOR BID ...

REFERENCE DRAWINGS | NUMBER

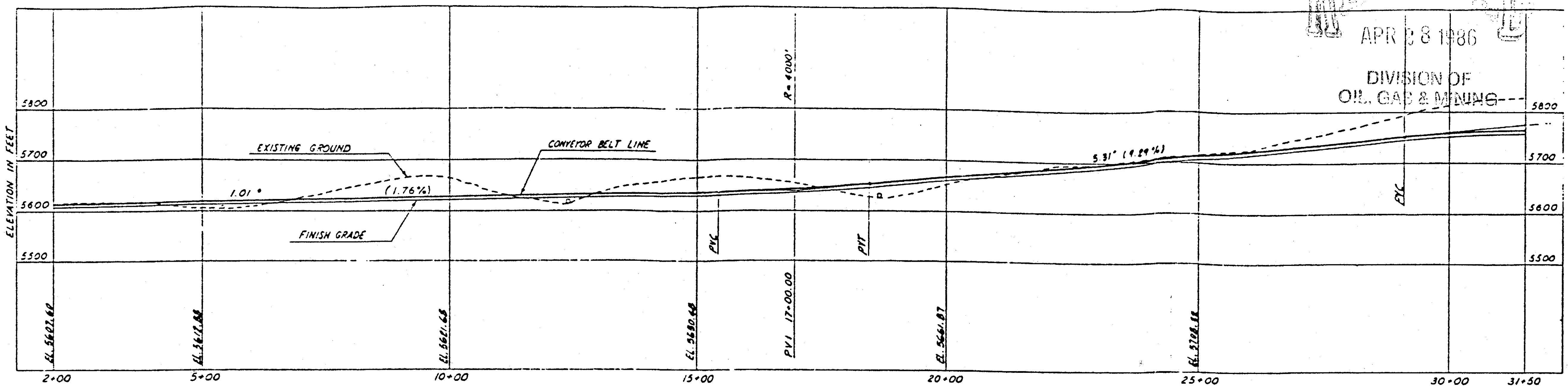
PARSONS
PASADENA, CALIFORNIA

KENNECOTT

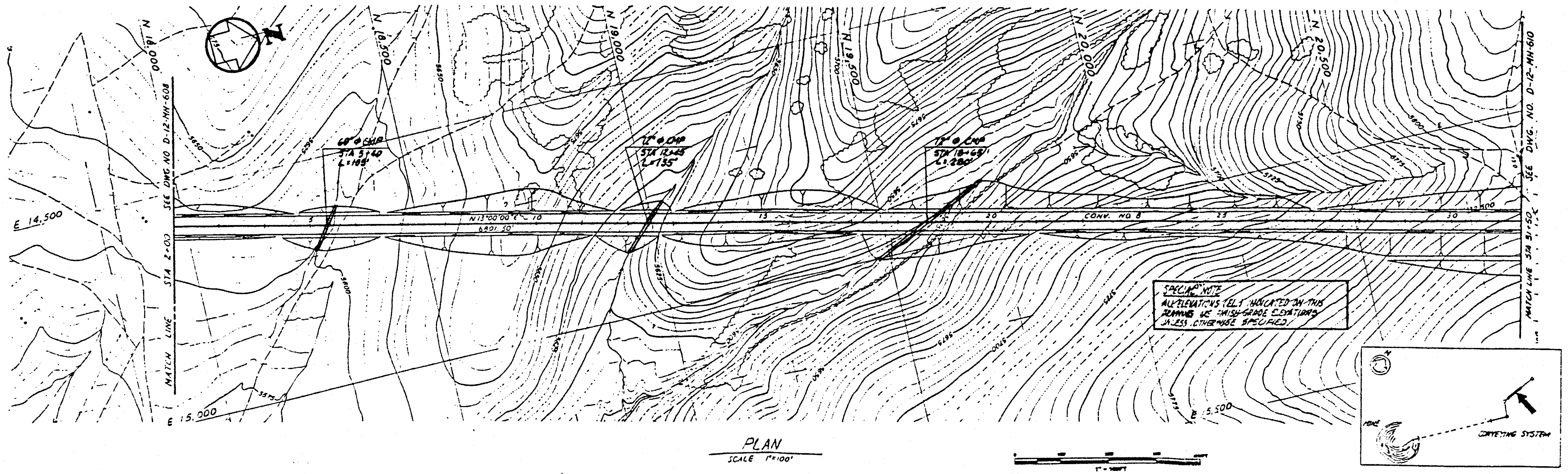
UCD MINE MODERNIZATION
CONVEYING SYSTEM
STA 170+30.60 (CONV NO 6) TO STA 2+00 (CONV NO 8)
PLAN AND PROFILE

DRAWN BY	CHEN	4-4-85
DESIGNED BY	CHEN	4-4-85
CHECKED BY		
APPROVED BY		
APPROVED		

JOB NO 5424 | DWG NO D-12-MH-608



PROFILE
SCALE 1"=100'



PLAN
SCALE 1"=100'

KEY PLAN

NOTES
1. CONVEYOR CONVEX AND CONCAVE RADII AS SHOWN ARE APPROXIMATE. CONVEYOR VENDOR SHALL SPECIFY.

NO	DATE	REVISION	APP	APP
		ISSUED FOR REVISED CONSTRUCTION PACKAGE		

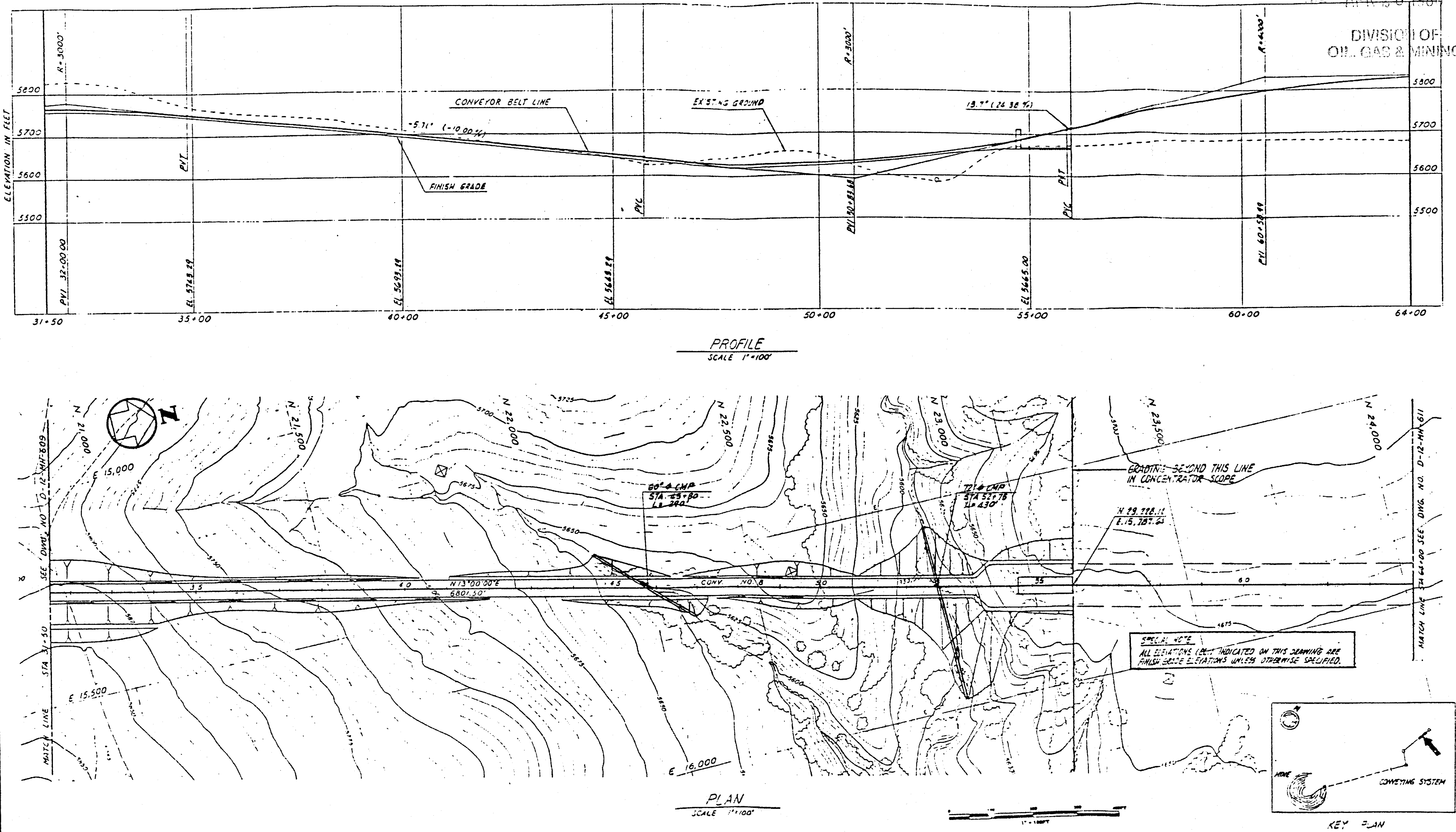
REFERENCE DRAWINGS | NUMBER

PARSONS
PASADENA, CALIFORNIA

KENNECOTT

UCD MINE MODERNIZATION
CONVEYING SYSTEM
STA 2+00 (CONV. NO 8) TO STA 31+50 (CONV. NO 8)
PLAN AND PROFILE

SCALE 1"=100'
JOB No 5424
DWG. No. D-12-MH-609



ELEVATION IN FEET
5800
5700
5600
5500
R=3000'
PVI 32+00.00
PVT
EL 5743.29
CONVEYOR BELT LINE
-5.71° (-10.00%)
FINISH GRADE
EL 5693.29
EL 5643.29
PVC
EXISTING GROUND
PVI 50+83.68
R=3000'
13.7° (24.38%)
EL 5665.00
PVC
PVT
PVI 60+58.99
R=4000'
31+50
35+00
40+00
45+00
50+00
55+00
60+00
64+00
PROFILE
SCALE 1"=100'
MATCH LINE STA 31+50 SEE DWG NO D-12-MH-609
N 21,000
N 21,500
N 22,000
N 22,500
N 23,000
N 23,500
N 24,000
E 15,000
E 15,500
E 16,000
N13°00'00"E
6801.50'
CONV. NO. 8
60" ⌀ CMP
STA. 45+80
L= 290'
72" ⌀ CMP
STA 52+78
L= 430'
GRADING BEYOND THIS LINE
IN CONCENTRATOR SCOPE
N 29,728.11
E 15,787.61
SPECIAL NOTE
ALL ELEVATIONS (EL.) INDICATED ON THIS DRAWING ARE FINISH GRADE ELEVATIONS UNLESS OTHERWISE SPECIFIED.
MATCH LINE STA 64+00 SEE DWG. NO. D-12-MH-611
MINE
CONVEYING SYSTEM
KEY PLAN
PLAN
SCALE 1"=100'

1 CONVEYOR CONVEX AND CONCAVE RADII AS SHOWN ARE APPROXIMATE. CONVEYOR VENDOR SHALL SPECIFY.

NOTES

REVISION | REFERENCE DRAWINGS | NUMBER

PARSONS
PASADENA, CALIFORNIA

APPROVAL | DATE

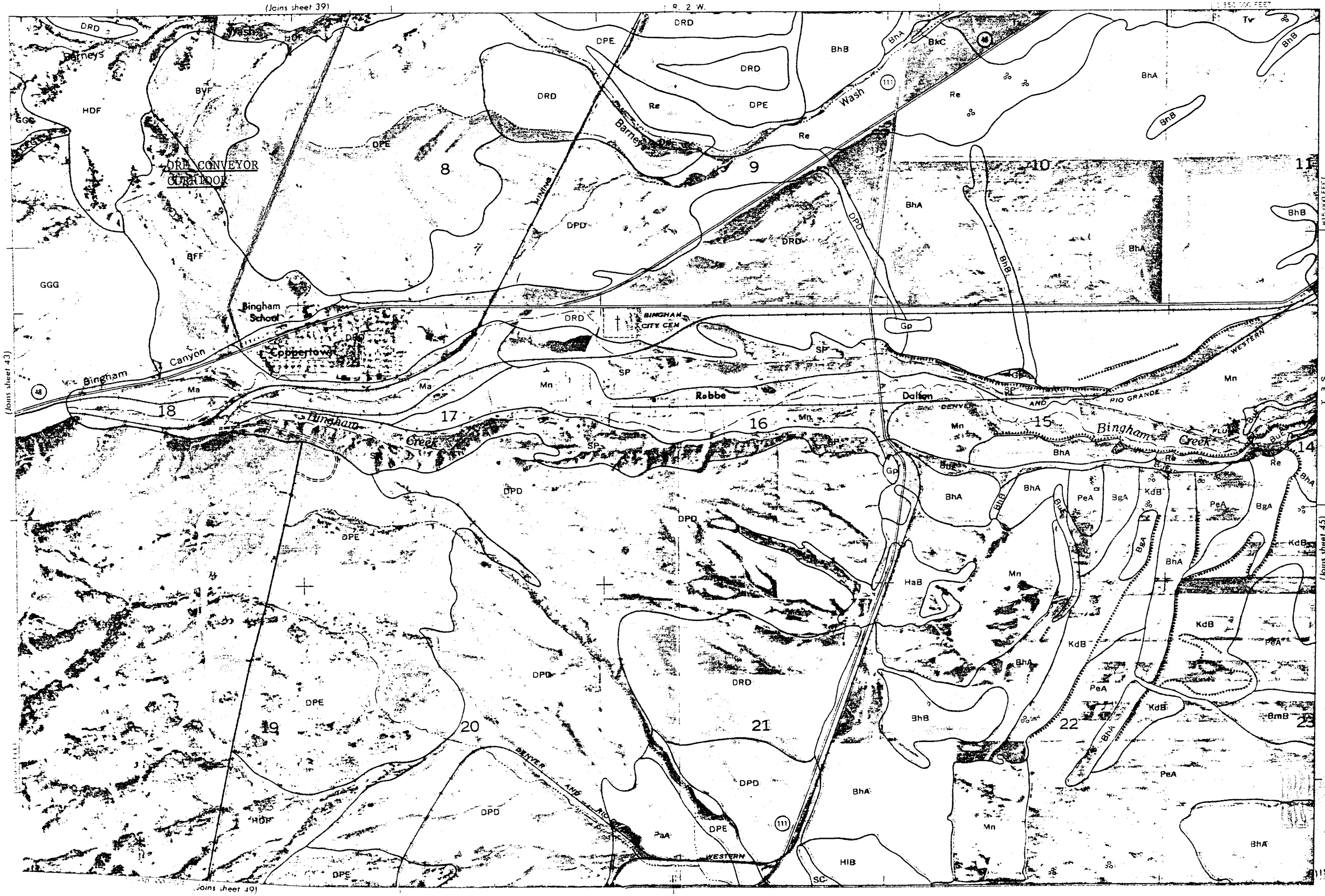
DESCRIPTION | COST ACCOUNT

KENNECOTT
UCD MINE MODERNIZATION
CONVEYING SYSTEM
STA 31+50 (CONV NO.3) TO STA 64+00 (CONV NO.3)
PLAN AND PROFILE

Job No. 5424 | Dwg. No. D-12-MH-610

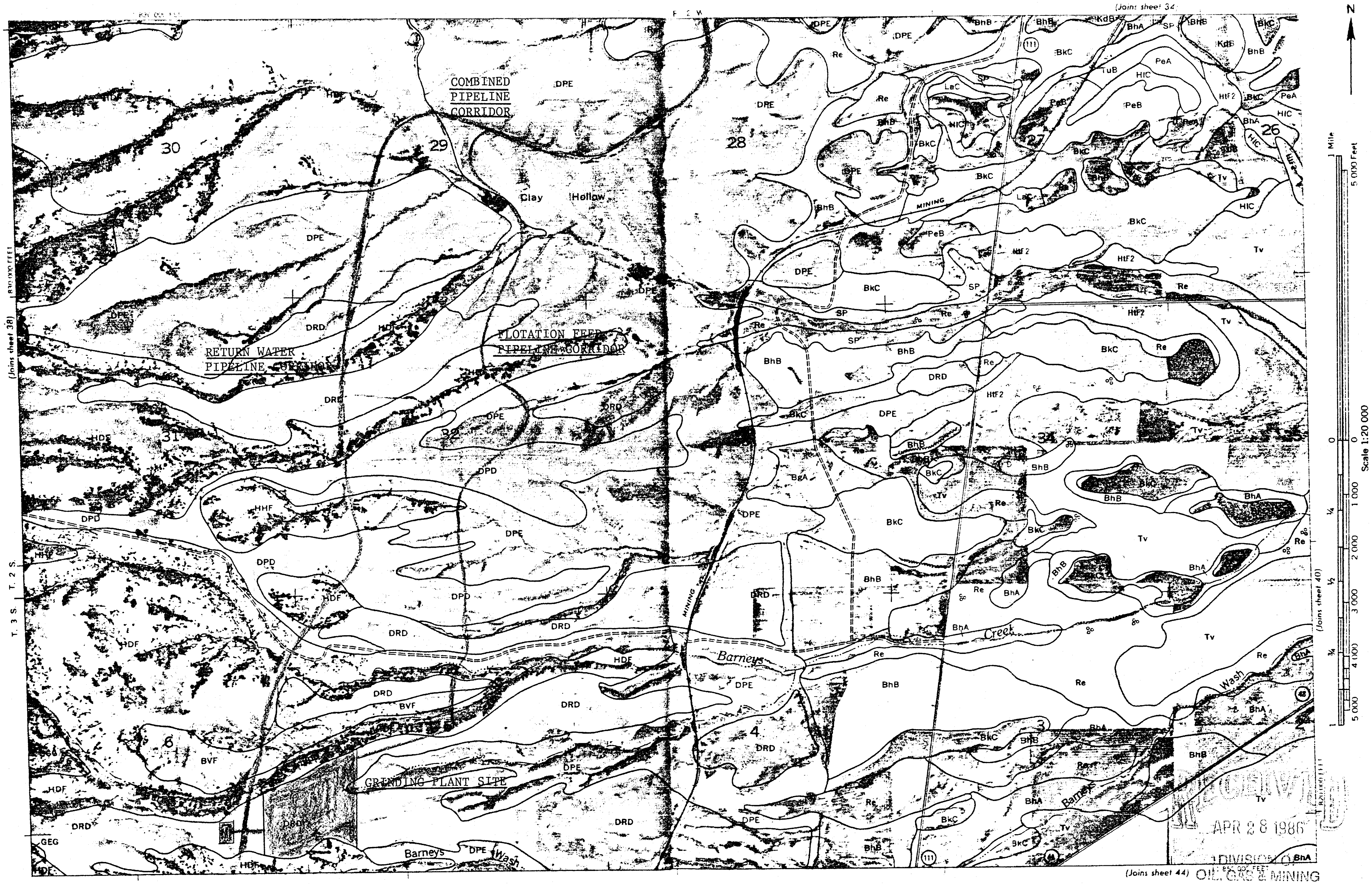
SALT LAKE AREA, UTAH — SHEET NUMBER 44

FIGURE 1



SALT LAKE AREA, UTAH — SHEET NUMBER 39

FIGURE 2



(34)

SALT LAKE AREA, UTAH — SHEET NUMBER 34

FIGURE 3

N

R. 2 W.

1 350 000 FEET

850 000 FEET

T. 2 S.

(Joins sheet 28)

(Joins sheet 33)

(Joins sheet 35)

(Joins sheet 39)

COMBINED PIPELINE CORRIDOR

Coon Hollow Wash

Deadmans Canyon

MINING

1 Mile

5 000 Feet

Scale 1:20 000

0 0

¼ 1 000

½ 2 000

¾ 3 000

1 4 000

1¼ 5 000

Photomaps from 1963 aerial photography. Positions of 5,000 foot grid ticks are approximate and based on the Utah coordinate system, central zone

RECEIVED
APR 28 1986
DIVISION OF OIL, GAS & MINING

SALT LAKE AREA, UTAH — SHEET NUMBER 28

FIGURE 4